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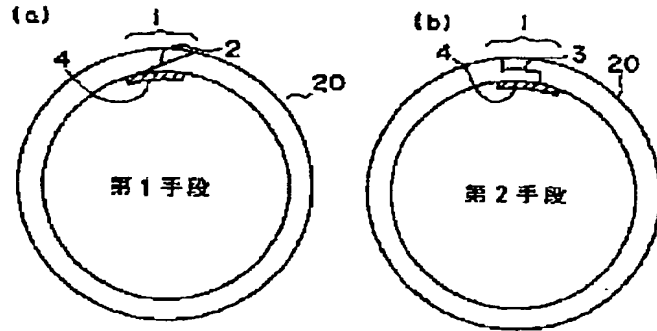
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APPLICANT : DAINIPPON PRINTING CO LTD;

INVENTOR : NAKAZAWA HIROKO;

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TITLE : LAMINATE TUBE



ABSTRACT : PURPOSE: To provide a laminate tube which can be produced with a wide freedom in the laminate constitution, adapting to a variety of material to be contained, suitable to the extrusion, having a good air, and almost seamless appearance as a tube.

CONSTITUTION: A laminate tube, the surface layer of which differs in quality from the rear layer is formed by putting together the two end edges of a strips of laminate, placed parallel to the direction of its run, and joining them to form a tube by heat seal. The trunk part 20 is formed by applying a tape 4 along both end edges from inside. Each of both end edges is formed either in a slantingly cut plane 2 or in steps 3.

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CLAIMS

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[Claim(s)]

[Claim 1] The lamination tube characterized by having compared the both-ends marginal comrade of the flow direction of the band-like laminated wood with which the quality of the materials of a front flesh side differ, having joined to tubed by heat joining, such as heat sealing, and lessening the level difference on a drum section, nothing, and this drum section front face.

[Claim 2] The lamination tube according to claim 1 characterized by establishing the field aslant cut into each of said both-ends edge.

[Claim 3] The lamination tube according to claim 1 characterized by preparing a level difference in each of said both-ends edge.

[Claim 4] The lamination tube characterized by having joined to tubed what piled up the side side and the level difference side in the band-like laminated wood with which the side side comrade of the band-like laminated wood with which each of a both-ends edge was cut aslant was piled up, or the level difference was prepared in one side among both-ends edges by heat joining, such as heat sealing, and lessening the level difference on a drum section, nothing, and this drum section front face.

[Claim 5] The lamination tube according to claim 1 to 4 characterized by sticking a tape inside and carrying out it along with the joint of said drum section.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] It extrudes and this invention is the thing excellent in the protection feature of the contents widely used for food, drugs, cosmetics, a special industrial product, etc. about a tube container.

[0002]

[Description of the Prior Art] As for the lamination tube by which toothbrushing is used abundantly as a core until now, the drum section is formed with the laminated wood. Moreover, molding of the drum section has joined the both-ends edge of the longitudinal direction of a band-like laminated wood by envelope \*\*\*\*, as shown in drawing 8. That is, as shown in drawing 8 (a), after piling up the front face and rear face of a laminated wood, it joins by thermocompression bonding. As this junction is generally called \*\*\*\*\* and that \*\*\*\*\* 1 is shown in drawing 8 (b), the polyolefine system resin A of a low-melt point point fuses, and it unifies, and joins, and a part flows out and protects the end face of a laminated wood. in addition, B and C, such as high-melting resin, and aluminium foil, paper, -- since --- tends to maintain a pattern, \*\*\*\*\* 1 is thicker than other parts.

[0003]

[Problem(s) to be Solved by the Invention] If it is going to expand the application of a lamination tube to food, drugs, cosmetics, a special industrial product, etc., at least, unlike the polyolefine system resin used for the inside-and-outside side of the conventional lamination tube, it excels in protection features, such as an aroma component and a physic component, and adoption of the resin which moreover has heat-sealing nature is needed for an innermost side. However, since a front flesh side will use the resin which has the above special functions by the conventional envelope \*\*\*\*\* drum section casting method which cannot perform formation of a drum section if it is not a front flesh-side homogeneous material, it becomes exaggerated spec. in respect of a protection feature, and there is a problem which influences economic cost, spoils diaphragm \*\*\*\*, or spoils the feel when having by aesthetic property, i.e., a hand. This invention was made in view of the above-mentioned trouble, and a front flesh side also aims the laminated wood of different material at offer of the lamination tube in which drum section processing is possible.

[0004]

[Means for Solving the Problem] This invention made in order to solve said technical problem The both-ends marginal comrade of the flow direction of the band-like laminated wood with which the quality of the materials of a front flesh side differ is compared, it joins to tubed by heat joining, such as heat sealing, and the level difference on a drum section, nothing, and this drum section front face is lessened, The field aslant cut into each of said both-ends edge or a level difference prepares, [ whether the side side comrade of the band-like laminated wood with which each of a both-ends edge was cut aslant is piled up, and ] Or the thing for which what piled up the side side and the level difference side in the band-like laminated wood with which the level difference was prepared in one side among both-ends edges was joined to tubed by heat joining, such as heat sealing, and the level difference on a drum

section, nothing, and this drum section front face was lessened, Let the lamination tube characterized by sticking a tape inside and carrying out it along with the joint of said drum section be a summary.

[0005]

[Function] Even if the front flesh side of a laminated wood is different material according to the lamination tube by this invention, drum section molding is attained, and the variation of a laminating configuration becomes abundance. Furthermore the appearance of a joint becomes beautiful and the thing near a seamless tube is obtained.

[0006]

[Example] This invention is explained in more detail using a drawing etc. Polyolefine system resin is used for the inside-and-outside layer of the drum section of the conventional lamination tube. However, when it was going to use the polyacrylonitrile copolymer (PAN) which was excellent in the protection fitness of a special drug effect component or a perfume component, for example only for the inside of a lamination tube, also outside by the conventional drum section casting method, the PAN layer needed to be prepared. PAN is expensive compared with polyolefine system resin, in having used it for both sides, a cost rise is imitated, the rigidity beyond the need is given to about \*\* and a drum section, contents are made hard to extrude and a feel also worsens. Therefore, if \*\*\*\*\* can also do the laminated wood of front flesh-side different material, such a problem will be solved and will explain below the lamination tube by this invention which uses the laminated wood of front flesh-side different material.

[0007] \*\*\*\*\* 1 of the lamination tube by this invention is formed by two sorts of means. First, according to the 1st means, as shown in drawing 1 (a), the both-ends side is omitted aslant, slanting end-face 2 comrade is compared, and it is joined with heat sealing. As shown in drawing 1 (b), the end face is processed in a completely different class, and the 2nd means is compared so that each stage comrade may complement each other and in-a-completely-different-class end-face 3 comrade may become the same thickness, and is joined with heat sealing.

[0008] Drawing 2 is the explanatory view of the comparison junction by the 1st means. As shown in drawing 2 (a), the laminated wood 10 which consists of a laminating material with which A-E differs Since end-face 2 comrade cut aslant is compared, it will be joined with heat sealing, a material comrade with the same homogeneous layer will be compared by the end face 2 in this case and it will be joined with heat sealing It becomes unnecessary to say that an inside-and-outside layer must be the same resin material like the conventional lamination tube, and a remarkable degree of freedom also produces an interlayer's lamination in order of an array. Therefore, protection-feature nature, a laminating process, etc. can be taken into consideration, the optimal laminating configuration according to contents can be defined comparatively freely, and the lamination tube which made it the need and used enough laminating materials can be offered now at economic cost. The applicability of the lamination tube by this invention is expanded as a result. As shown in drawing 2 (c) and (d), you may make it the condition of having compared first the end-face comrade cut aslant shift a phase depending on the resin which it may be made to serve as uniform thickness from the beginning like drawing 2 (b), and laminating-constitutes and is used. When shown in this drawing 2 (d), if it says strictly, it will be [ direction ] appropriate and will be an approach corresponding to [ call it superposition and ] claim 4 rather than it calls it comparison. Although it is pressurized from an inside-and-outside side in addition to heating by a certain approach if in charge of junction of the edge in any case, especially in the case of superposition, it needs to be pressurized.

[0009] Along with an end face, the reinforcing tape 4 by a polyethylene terephthalate film etc. is stuck inside, is carried out, and you may make it reinforce it with 1st means by which it is compared by the slanting end face 2, and junction by heat sealing is performed, further, as drawing 1 R> 1 and drawing 2 show. This is for preventing osmosis into the laminated wood of that bond strength runs short by heat sealing only by the slanting end face depending on a laminating configuration, and the contents from an end face. It is effective in furthermore compensating heating of \*\*\*\*\* 1, and loss of weight of the thickness by sticking by pressure.

[0010] The approach of forming the slanting end face 2 in the both ends of the piece of a laminated wood is performed using a circular cutter as shown in a leather cutter or drawing 3 (b) as already shown

in well-known drawing 3 (a). This slanting cut is printed in the state of the double width original fabric of the conventional lamination tube. May perform lamination, may permute the cutting edge of the slitting machine when carrying out a slit by the product width of face which is finally equivalent to the periphery of a tube by thing like drawing 3, and Moreover, the band-like laminated wood which carried out the slit of the both-ends side to the right angle by the cutter as usual is once rolled round, a band-like laminated wood is supplied to a \*\*\*\*\* machine from this rolling up, and you may make it omit a both-ends side aslant by the \*\*\*\*\* on a plane, as shown in drawing 4. In addition, as drawing 4 is shown, the tape 4 for reinforcement is inserted in the inside of the lamination tube 20 just before the \*\*\*\*\* unit 8. As for the above slanting cut, it is desirable to be carried out to the circumferencial direction of a laminated wood in 1-2mm by the lamination tube in the range whose thickness of the usual laminated wood is 100-500 micrometers.

[0011] Next, the 2nd means is explained. As shown in drawing 5, the end face 3 of the both ends of the longitudinal direction of the piece of a laminated wood in a completely different class consists of two or more number of stageses, and may be asymmetry if the stage comrade of a both-ends side complements thickness mutually, even if the configuration of a stage will be point symmetry as shown in drawing 5 (a) and (b), as shows it to drawing 5 (c). However, in any case, it is necessary to take the thickness of a layer, a laminating process, etc. into consideration, and it needs to decide between which laminating materials the horizontal plane of a stage should be established. Furthermore, as shown in drawing 5 (d), in the band-like laminated wood with which the level difference was prepared in one side of a both-ends edge, it may join to tubed by heat joining, such as heat sealing, in respect of the side side and a level difference, and a drum section may be fabricated. This corresponds to claim 4 and needs \*\* higher than the comparing method for reducing the level difference of a superposition part. In the 2nd means, junction of the laminating material comrade who counters in the horizontal plane of a stage is more important than the vertical plane of the compared laminating material comrade of the same kind, there is compatibility in the horizontal plane of the end face 3 in a completely different class, and a laminating configuration needs to be designed so that a resin layer comrade with heat-sealing nature may counter. It is desirable to use a tape 4 for reinforcement with the 2nd means as well as the 1st means.

[0012] The drum section 20 of the lamination tube by comparing the end face 3 of the 2nd means in a completely different class, and joining is manufactured by the following approach. each pieces A, B, and C of a band-like laminating material by which the slit was carried out to the width of face which is equivalent to the periphery of the tube of a piece first --- Shift only the step size of a stage in a flow direction and the cross direction, and it laminates. So that a stage may be formed The end face 3 in a completely different class is formed in both sides, then, the band-like laminated wood is supplied to a \*\*\*\*\* machine like drawing 6 (a), and a reinforcing tape 4 is supplied from the inside, and after carrying out thermocompression bonding and \*\*\*\*\* (ing) by the heat sealer 8 (not shown), a drum section 20 is cut into round slices to predetermined die length, at the same time it compares the both-ends side 3. Or you may make it heat seal in-a-completely-different-class end-face 3 compared comrade, where it involves at a time one piece of a laminated wood cut in predetermined magnitude in a core like drawing 6 (b).

[0013] Furthermore, when the efficiency of the above-mentioned in-a-completely-different-class end-face processing method is insufficient and it becomes a problem, the level difference processing method of many trains explained below may be used. That is, when performing lamination and printing by 4 train picking as shown in drawing 7 for example, as drawing 7 (a) shows, the partial coat of the stripe-like stratum disjunctum pattern 5 is carried out, and it is formed in the material original fabric which forms \*\*\*\* of the end face 3 in a completely different class. In this drawing, the piece of a laminating per lamination tube piece is shown by LxR. Moreover, cross-section a-a' of the cross direction to this stratum disjunctum pattern 5 is shown by drawing 7 (b). As the laminating original fabric obtained by carrying out the laminating of this material original fabric further is shown in drawing 7 (b) from the opposite side along with the line 7 of the both ends of the stratum disjunctum pattern 5, and 7', respectively, after carrying out half cutting, a slit is carried out in Chuo Line 6 of the stratum disjunctum pattern 5, it considers as the band-like laminating original fabric of width of face R, and as shown in

drawing 7 (c), after exfoliating the shadow area shown by drawing 7 (b) and attaching a stage to both ends from those both ends, it rolls round. At the end, \*\*\*\*\* is performed using the rolled-round band-like laminated wood by the above-mentioned approach shown in drawing 6 (a) or (b).

[0014] In addition to the approach of common knowledge, such as gravure, offset printing, and silk screen printing, processing of foil push, embossing, etc. is also possible for the printing method to a double width original fabric enough. Furthermore, arbitrary transperence patterns and the so-called aperture can be prepared in the arbitrary locations of a drum section. By processing of the drum section 20 of the above lamination tube, \*\*\*\*\* which was offensive to the eye until now became beautiful to extent which is hardly visually discriminable, the high-class feeling was given to the product, and it became possible to supply the lamination tube which can give a highly complete design. In addition, merits, such as the efficiency of a pre-print which the conventional lamination tube has by this invention, and flesh-side printing to a transperence laminating material, are not spoiled at all.

[0015] The lamination tube by this invention becomes larger than the lamination tube of the former [ degree of freedom / of a laminating configuration ] as mentioned above, and a front flesh side can also process the thing of this quality of the material, or the thing of different material. Therefore, the applicability of contents is expandable. \*\*. For example, the lamination tube of the following front flesh-side different material can be supplied.

PEF150/PE30/EVOH15/PE30/opaque white PEF120PE210/PET12/SiOx-

PET12/PAN70PEF150/PET12/PE20/opaque white PEF120/SiOx-

PET12/EVOH60PEF150/PET12/PE20/opaque white PEF120/SiOx-PET12/PAN70PE Polyethylene

PEF Polyethylene film PET Polyethylene terephthalate EVOH Ethylene vinyl alcohol copolymer PAN

Polyacrylonitrile copolymer SiOx Oxidation silicon vacuum evaporation film [0016]

[Effect of the Invention] According to the lamination tube by this invention, by using the front flesh side of a laminated wood as different material, a degree of freedom can increase to the combination of a laminating material, and built-up sequence, and it can respond to more contents, and is made the need, and reduction of material cost is attained and extrusion fitness, the feel at the time of extrusion, aesthetic property, etc. can be freely controlled by the combination of enough materials. Furthermore, the surface state in \*\*\*\*\* approaches the condition of a seamless tube, and the ornament with a high-class feeling of it is attained.

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[Translation done.]